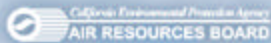


Lisa Kasper
ZEV Implementation Section
California Air Resources Board

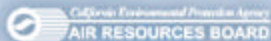
An Overview of California's Zero Emission Vehicle (ZEV) Program

Diamond Bar, California
September 12, 2002

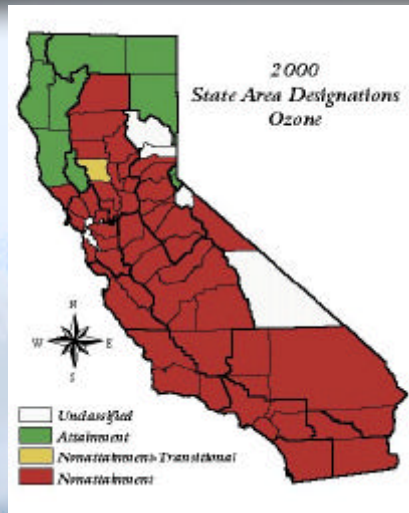


Air Resources Board's Goal

Ensure all Californians, especially children and the elderly, can live, work and play in a healthful environment free from harmful exposure to air pollution



Most of California Non-attainment for Ozone



Why California Wants ZEVs?

- No tailpipe emissions
- No evaporative or fuel marketing emissions
- No emission control equipment deterioration or failure
- Reduced toxic and greenhouse gas emissions
- Extremely low powerplant emissions in California

Why Fleets Want ZEVs?

- Low operating cost
- Low maintenance costs
 - no oil changes or smog checks
- Complete warranty--no risk
- Employee satisfaction
- Positive image for company

History of ZEV Program

- In 1990, Low Emission Vehicle (LEV I) program adopted with ZEV requirements:
 - 2% in 1998, 5% in 2001, 10% in 2003
- In 1996, requirements for 1998 and 2001 eliminated
 - Automakers and ARB signed Memoranda of Agreement (MOA) for vehicle demonstration projects beginning in 1998
- In 1998, partial ZEV alternative adopted
- In 2001, ZEV program reaffirmed with technology options for 2003 and beyond
- Program implementation currently on hold with vehicles still available

Zero Emission Vehicles

- Battery electric vehicles (BEVs)
 - “Full function” electric vehicles
 - “City” electric vehicles
 - “Neighborhood” electric vehicles
- Hydrogen fuel cell vehicles

Full-Function Electric Vehicles

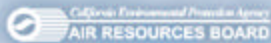


- Many applications
- 7 models proven on the road
 - Toyota RAV4
 - Nissan Altra
 - Ford Ranger
 - Chevy S-10
 - GM EV1
 - Honda EV+
 - Chrysler EPIC

City Electric Vehicles

- ? Smaller vehicles with some overlap with Full-Function BEVs
- ? Full FMVSS safety certification needed
- ? 50- 70 mph top speed
- ? 40-60 mile range
- ? 2-4 passengers

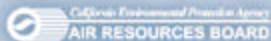
TH!NK *city*
Nissan HyperMini
Honda City Pal
DaimlerChrysler Smart



Neighborhood Electric Vehicles

- ? New DOT classification
- ? 25 mph top speed
- ? Limited range
- ? 2-4 passengers

GEM
TH!NK Neighbor
Pathway
Lido



Fuel Cell Vehicles

- Long-term promise
- Major development efforts underway
- Controlled fleet demos in 2003-04
- Large volume production not expected for 5-10 years



Public Charging Infrastructure

- Primarily located in major urban areas
 - funded by Energy Commission, local public agencies and automakers
 - Several technologies currently in use
- Beginning with 2006 model year vehicles - a single charging system will be used
- Stakeholders working on maintenance and expansion issues

ev Loan Program

- EVs loaned to public agencies at no cost for one to three months
- Free temporary charger installed at facility
- Provides a no-risk opportunity to experience the many benefits of electric vehicles.
- Gives "real-world" experience with electric vehicles.

Vehicle Incentives

- **State Incentives**
 - \$9,000 per EV through Dec. 2002
 - Up to \$5,000 per EV through Jan. 2003 - June 2004 for retail customers
 - **Up to \$11,000 per EV for fleets in EJ areas**
 - HOV Lane Access
 - Efficient Vehicle Incentives for hybrid gasoline and alternative fuel vehicles
- **Federal Tax Incentives/Deductions**
 - IRS Publication 535
- **Some Local Incentives**

Contact Information

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